Remarks

After the foregoing amendment, claims 1, 5 – 8, 14, 17, and 19 – 35 are pending, with claims 1, 8, 14, 17, and 19 being the independent claims. Claims 1, 17, and 19 have been amended. New claim 36 has been added.

Amendments

Claims 1 and 17 have been amended to address the rejections under 35 U.S.C. section 112. The indefinite "may be" and "may have" language in both claims has been amended in favor of more precise terms. Claim 19 has been amended to remove the dot after the word "and" as required by the objection in paragraph 5. For all amendments, the scope of the claims has not been changed (broadened or narrowed) and the scope of any amended element has not been narrowed by the amendment.

Israel Reference

U.S. Patent 6,600,501 ("Israel") was filed on May 18, 2000. The filing date of Applicant's patent application is November 12, 1999. Accordingly, the Israel reference is not prior art. Claims 5 and 31 were rejected based in part on the Israel reference. Applicant respectfully requests that the rejection be withdrawn and a notice of allowance for claims 5 and 31 be issued.

Rao Reference

U.S. Patent 6,628,312 ("Rao") is cited by the Examiner as anticipating independent claims 1, 8, 14, 17, and 19 under 35 U.S.C. section 102(e). Applicant respectfully asserts that Rao does not anticipate the claimed invention. Rao teaches a "bottom up" multidimensional data model that partitions data values at the micro level into several dimensions. A dimension is defined as an independent partitioning of the set of all values. (Column 4, lines 40 – 41). Thus, the fundamental organization of data taught by the Rao data model is based on multiple ways to divide up values, which are defined as the smallest unit of data which continues to have meaning in the physical world. (Column 4, lines 30 – 31). Such a data model does not fairly teach the claimed method of modeling information.

In contrast to the "bottom up" model taught by Rao, the claimed method of modeling information is a "top down" model that does not rely on organizing data at the atomic level (i.e., the partitioning of atomic values into dimensions as taught by Rao). Instead, the claimed method

organizes data into data elements that comprise a frame (or multiple frames) and an event (or multiple events). The frame includes atomic data (quantitative data), but that data does not define the organization of the data model, as taught by Rao.

Additionally, the event that is part of the data element includes one or more links to other data elements. These links associate data elements together based on common events shared by the linked data elements.

The data model described in Rao fails to teach the claimed invention because it does not contemplate the organization of data by elements and the linking of the various elements to each other by common events.

In particular, the Office Action cites Rao at column 2, lines 27 – 42 as teaching that data elements are linked in the data model by common events. This passage, however, states that Rao stores the multidimensional data set using an abstract data model partitioned into dimensions and converts portions of the data set stored in the abstract data model into a visual model having dimensions of the abstract data model organized as at least one hierarchical tree. The visual hierarchy of the data model dimensions does not fairly teach the claimed linking of data elements by common events in the data model.

The Office Action also cites Rao at column 5, lines 21 – 34 as teaching that data elements are linked in the data model by common events. This passage, however, describes the concept of a pseudo-compound key, which is sub-partition of a particular dimension. Rao does teach that its data model includes a hierarchy of keys, with each key describing finer and finer partitions of the data values until a simple key (i.e., an atomic value) is reached. The compound, pseudo-compound, and simple keys described by Rao do not teach the claimed linking of data elements by common events in the data model.

Moreover, the Office Action cites Rao at column 6, lines 51 – 59 and the corresponding Figure 7 as teaching that data elements are linked in the data model by common events. This passage and figure, however, emphasize the difference between the "bottom up" teachings of Rao and the claimed invention. The cited passage discusses a slab, which is described as a group of cells (i.e., atomic values). At column 6, lines 30 – 35, Rao again describes the data model as organizing data values into an N-dimensional array. This is the "bottom up" organizational approach of the Rao

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data model. Furthermore, the passage states that a single cell is a placeholder for a single value, which was described earlier as the smallest unit of data which continues to have meaning in the physical world. (Column 4, lines 30 – 31).

Accordingly, the collection of cells called a slab or stick described at column 6, lines 51 – 59 and in the corresponding Figure 7 do not teach the claimed linking of data elements by common events in the data model. The passage and the figure merely describe a particular collection of data values (the dimension) and some potential groupings of those data values. The claimed invention, to the contrary, requires a common event between data elements and then the data elements (i.e., the macro structures of the data model) are associated by a link between the common elements.

Furthermore, the claimed invention also requires that the link itself be defined by a link model that indicates the purpose of the link. The claimed link model is not fairly taught or disclosed by Rao.

Applicant therefore respectfully asserts that the claimed invention as embodied in the independent claims is not anticipated by Rao or any combination of Rao and the prior art. Consequently, because the dependent claims further refine and limit the base claims, Applicant submits that all pending claims are presently in condition for allowance and a notice of allowance is respectfully requested.

Finally, the Rao reference generally discusses three separate concepts. First, Rao describes an abstract multidimensional data model that organizes atomic values into simple keys, psuedo-compound keys, compound keys, and ultimately dimensions. Second, Rao describes the abstract data model used by the visualization tool. Last, Rao describes the visual model (i.e., what is displayed on a computer screen) and certain operations on the visual model. Applicant's claimed invention is directed toward a data model. The portion of the description in Rao directed toward the visual model and operations on the visual model does not extend Rao's teachings related to the data model itself. This additional description in Rao merely teaches the translation of the multidimensional data model into a two dimensional image for display on a computer screen and how to perform certain operations on the visual model.

Conclusion

The Israel reference is not prior art with respect to the present application. The Rao reference and other prior art of record do not teach or disclose the claimed invention and in particular do not teach a data model that links data elements through common events. Accordingly, Applicant respectfully requests a notice of allowance for all pending claims. If the Examiner has any questions or comments regarding the above Amendments and Remarks, the Examiner is urged to contact the undersigned at the number listed below.

Respectfully submitted,
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Dated: December 22, 2003   By: _____

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